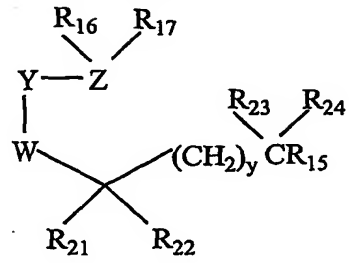
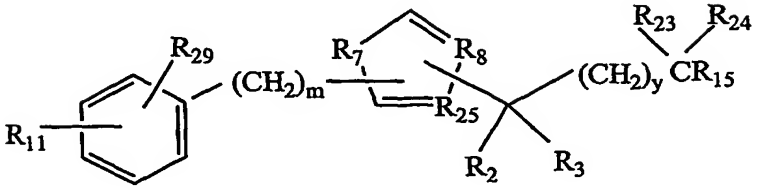
Claims:

1. A compound represented by the formula:



or



wherein

W is $CR_{27}R_{28}$ or $(CH_2)_nNH$ (CO);

wherein R_{27} and R_{28} are independently selected from the group consisting of H, halo and hydroxy;

Y is selected from the group consisting of a bond, CR_9R_{10}, carbonyl, NH, O or S;

wherein R_9 and R_{10} are independently selected from the group consisting of H, halo, hydroxy and amino;

Z is CH_2, aryl, halo substituted aryl or heteroaryl;

R_{11} and R_{16} are independently selected from the group consisting of C_5-C_{12} alkyl, C_5-C_{12} alkenyl, C_5-C_{12} alkynyl, C_5-C_{12} alkoxy, $(CH_2)_pO(CH_2)_q$, C_5-C_{10} (aryl)R_{20}, C_5-C_{10} (heteroaryl)R_{20}, C_5-C_{10} (cycloalkyl)R_{20}, C_5-C_{10} alkoxy(aryl)R_{20}, C_5-C_{10} alkoxy(heteroaryl)R_{20} and C_5-C_{10} alkoxy(cycloalkyl)R_{20};

wherein R_{20} is H or C_1-C_{10} alkyl;

R_{29} is H or halo;

R_{17} is selected from the group consisting of H, halo, NH_2, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylamino, C_1-C_6 alkylcyano and C_1-C_6 alkylthio;

R_2, and R_{21} are both NH_2;

R_3 is selected from the group consisting of H, C_1-C_6 alkyl, (C_1-C_4 alkyl)OH, and (C_1-C_4 alkyl)NH_2;

R_{22} is selected from the group consisting of C_1-C_6 alkyl, (C_1-C_4 alkyl)OH and (C_1-C_4 alkyl)NH_2;

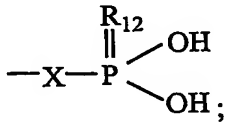
R_{23} is selected from the group consisting of H, F, CO_2H, OH, C_1-C_6 alkyl, (C_1-C_4 alkyl)OH, and (C_1-C_4 alkyl)NH_2;

R_{24} is selected from the group consisting of H, F and PO_3H_2, or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

R_{25}, R_7 and R_8 are independently selected from the group consisting of O, S, CHR_{26}, CHR_{26}, NR_{26}, and N;

wherein R_{26} is H, F or C_1-C_4 alkyl;

R_{15} is selected from the group consisting of hydroxy, phosphonate, and



wherein R_{12} is selected from the group consisting of O, NH and S;

X is selected from the group consisting of O, NH and S;

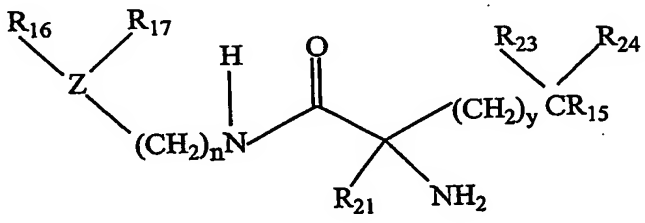
y and m are integers independently ranging from 0 to 4;

p and q are integers independently ranging from 1 to 10;

n is an integer ranging from 0 to 10;

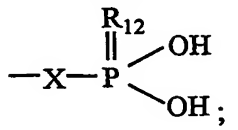
or a pharmaceutically acceptable salt or tautomer thereof, with the proviso that W and Y are not both methylene.

2. The compound of claim 1 wherein the compound is represented by the formula:



wherein

R_{15} is selected from the group consisting of hydroxy, phosphonate, and



wherein X and R_{12} are independently selected from the group consisting of O and S;

R_{23} and R_{24} are independently selected from the group consisting of H, F and C_1-C_4 alkyl;

or a pharmaceutically acceptable salt or tautomer thereof.

3. The compound of claim 2 wherein

y is 0 or 1;

n is 1-10;

Z is CH_2; and

R_{17} is H.

4. The compound of claim 2 wherein

y is 0 or 1;

n is 0;

Z is C_5-C_6 aryl or C_5-C_6 heteroaryl;

R_{16} is selected from the group consisting of C_5-C_{12} alkyl C_2-C_{12} alkenyl or C_5-C_{12} alkoxy; and

R_{17} and R_{23} are each H.

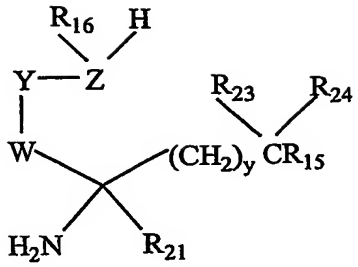
5. The compound of claim 4 wherein

Z is C_5-C_6 aryl;

R_{24} is H; and

R_{21} is selected from the group consisting of C_1-C_4 alkyl, and (C_1-C_4 alkyl)OH.

6. The compound of claim 1 wherein the compound is represented by the formula:



wherein Z is aryl or heteroaryl;

R_{16} is selected from the group consisting of C_5-C_{12} alkyl, C_5-C_{12} alkenyl, C_5-C_{12} alkynyl and C_5-C_{12} alkoxy;

Y is selected from the group consisting of CHOH, CF_2, CFH, carbonyl, NH, O and S;

W is $CR_{27}R_{28}$;

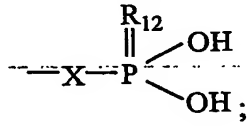
wherein R_{27} and R_{28} are independently selected from the group consisting of H, halo and hydroxy;

R_{21} is selected from the group consisting of C_1-C_6 alkyl, (C_1-C_4 alkyl)OH and (C_1-C_4 alkyl)NH_2;

R_{23} is selected from the group consisting of H, F, CO_2H, C_1-C_6 alkyl, (C_1-C_4 alkyl)OH, and (C_1-C_4 alkyl)NH_2;

R_{24} is selected from the group consisting of H, F and PO_3H_2, or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

R_{15} is selected from the group consisting of hydroxy, phosphonate, and



wherein X and R_{12} are independently selected from the group consisting of O and S;

y is an integer ranging from 0 to 4;

or a pharmaceutically acceptable salt or tautomer thereof.

7. The compound of claim 6 wherein

R_{23} and R_{24} are both H;

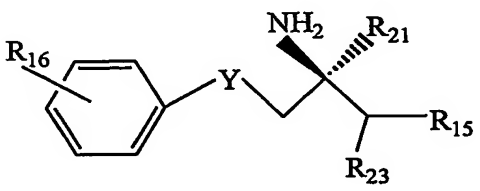
R_{27} and R_{28} are independently selected from the group consisting of H and F;

Z is C_5-C_6 aryl or C_5-C_6 heteroaryl;

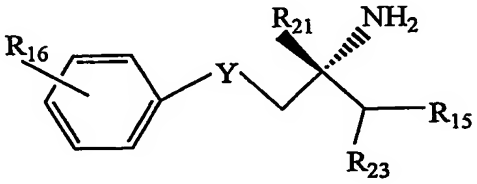
R_{21} is selected from the group consisting of OH, C_1-C_4 alkyl, and (C_1-C_3 alkyl)OH; and

y is 0 or 1.

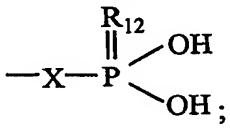
8. The compound of claim 6 wherein the compound is represented by the formula:



or



wherein R_{15} is selected from the group consisting of hydroxy, phosphonate,



and

wherein X and R_{12} are independently selected from the group consisting of O and S;

R_{21} is selected from the group consisting of C_1-C_3 alkyl and (C_1-C_4 alkyl)OH;

R_{23} is selected from the group consisting of H, F, C_1-C_3 alkyl and (C_1-C_4 alkyl)OH;

or a pharmaceutically acceptable salt thereof.

9. The compound of claim 8 wherein Y is selected from the group consisting of carbonyl, NH and O.

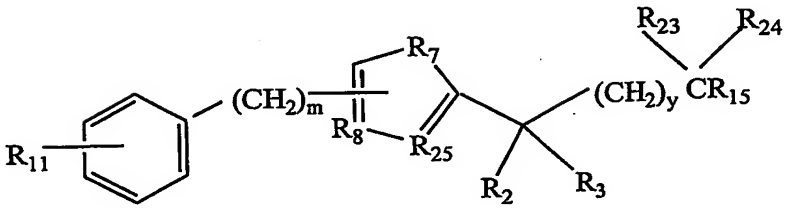
10. The compound of claim 9 wherein

R_{15} is OH; and

R_{23} is selected from the group consisting of H, F and C_1-C_3 alkyl;

or a pharmaceutically acceptable salt thereof.

11. The compound of claim 1 wherein the compound is represented by the formula:



wherein

R_{11} is selected from the group consisting of C_5-C_{12} alkyl, C_5-C_{12} alkenyl and C_5-C_{12} alkynyl;

R_7 and R_8 are independently selected from the group consisting of O, S, CHR_{26}, CHR_{26}, NR_{26}, and N;

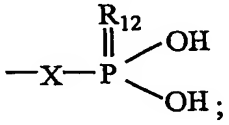
wherein R_{26} is H, F or C_1-C_4 alkyl;

R_{25} is N or CH;

R_2 is NH_2;

R_3 is selected from the group consisting of H, C_1-C_4 alkyl, (C_1-C_4 alkyl)OH, and (C_1-C_4 alkyl)NH_2;

R_{15} is selected from the group consisting of hydroxy, phosphonate, and



wherein X and R_{12} is selected from the group consisting of O and S;

R_{23} is selected from the group consisting of H, F, OH, C_1-C_4 alkyl, CO_2H and C_1-C_4 alkyl;

R_{24} is selected from the group consisting of H, F, C_1-C_4 alkyl and PO_3H_2, or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group; and

y and m are integers independently ranging from 0 to 4;

or a pharmaceutically acceptable salt or tautomer thereof.

12. The compound of claim 11 wherein

m is 0;

y is 0 or 1;

R_{25} is CH;

R_{23} is H or F; and

R_{24} is selected from the group consisting of H, F and C_1-C_4 alkyl.

13. The compound of claim 11 wherein R_3 is selected from the group consisting of C_1-C_3 alkyl and (C_1-C_4 alkyl)OH.

14. The compound of claim 12 or 13 wherein

R_7 is NH; and

X is O;

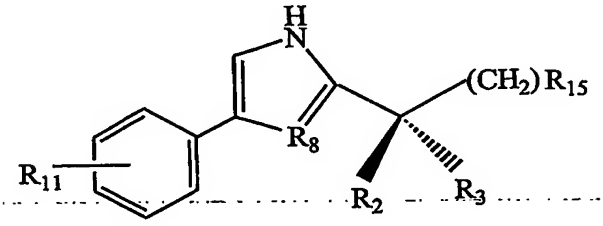
or a pharmaceutically acceptable salt or tautomer thereof.

15. The compound of claim 14 wherein

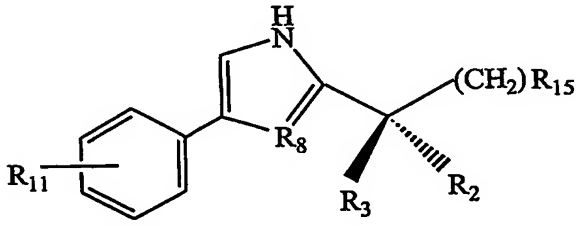
y is 0; and

R_{15} is OH.

16. The compound of claim 13 wherein the compound is represented by the formula:



or



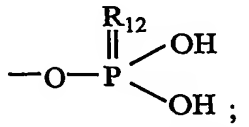
wherein R_{11} is C_5-C_{18} alkyl or C_5-C_{18} alkenyl; and

R_8 is N;

or a pharmaceutically acceptable salt or tautomer thereof.

17. The compound of claim 16 wherein

R_{15} is selected from the group consisting of hydroxy and



wherein R_{12} is O or S;

or a pharmaceutically acceptable salt or tautomer thereof.

18. The compound of claim 17 wherein R_{11} is C_5-C_9 alkyl;

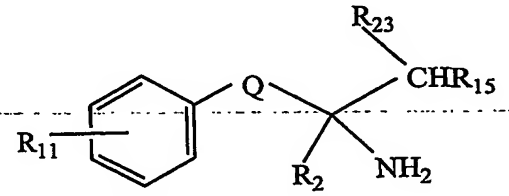
R_{15} is OH and

R_3 is selected from the group consisting of CH_3, CH_2CH_3, CH_2OH, CH_2CH_2OH and $CH_2CH_2CH_2OH$.

19. A composition comprising a compound of claim 1, 2, 6, 8, 11 or 16 and

a pharmaceutically acceptable carrier.

20. A composition comprising a compound represented by the formula



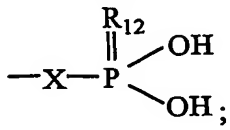
wherein R_{11} is C_5-C_{18} alkyl or C_5-C_{18} alkenyl;

Q is selected from the group consisting of C_3-C_6 optionally substituted cycloalkyl, C_3-C_6 optionally substituted heterocyclic, C_3-C_6 optionally substituted aryl, C_3-C_6 optionally substituted heteroaryl and -NH(CO)-;

R_2 is selected from the group consisting of H, C_1-C_4 alkyl and (C_1-C_4 alkyl)OH;

R_{23} is H or C_1-C_4 alkyl, and

R_{15} is selected from the group consisting of hydroxy, phosphonate, and

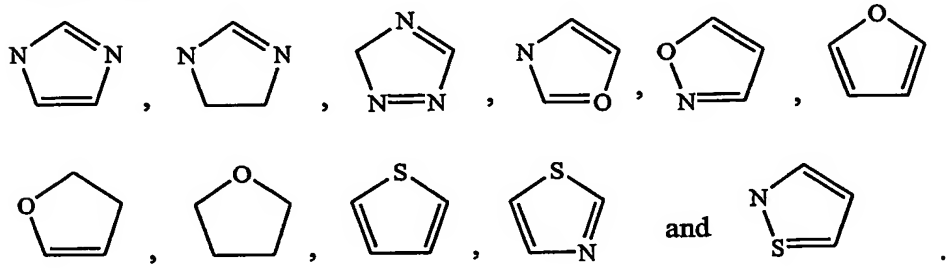


wherein X and R_{12} is selected from the group consisting of O and S;

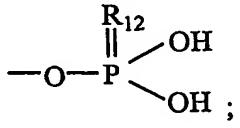
or a pharmaceutically acceptable salt or tautomer thereof and

a pharmaceutically acceptable carrier.

21. The composition of claim 20 wherein Q is selected from the group consisting of

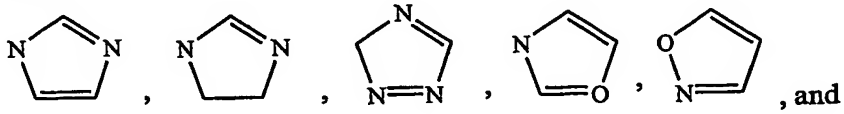


22. The composition of claim 21 wherein R_{15} is selected from the group consisting of hydroxy and



wherein R_{12} is O or S.

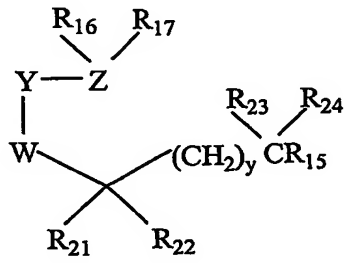
23. The composition of claim 22 wherein Q is selected from the group consisting of



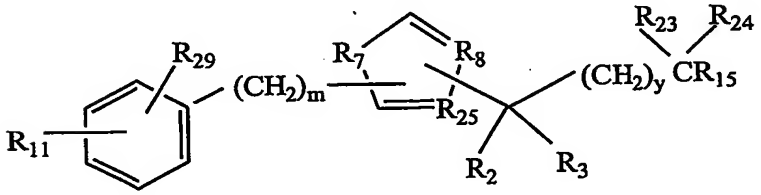
R_{15} is OH;

or a pharmaceutically acceptable salt or tautomer thereof.

24. A method for modulating the activity of an S1P receptor, said method comprising the step of contacting said receptor with a compound represented by the formula:



or



wherein

W is $CR_{27}R_{28}$ or $(CH_2)_nNH$ (CO);

wherein R_{27} and R_{28} are independently selected from the group consisting of H, halo and hydroxy;

Y is selected from the group consisting of a bond, CR_9R_{10}, carbonyl, NH, O or S;

wherein R_9 and R_{10} are independently selected from the group consisting of H, halo, hydroxy and amino;

Z is CH_2, aryl, halo substituted aryl or heteroaryl;

R_{11} and R_{16} are independently selected from the group consisting of C_1-C_{12} alkyl, C_2-C_{12} alkenyl, C_2-C_{12} alkynyl, C_5-C_{12} alkoxy, $(CH_2)_pO(CH_2)_q$, C_5-C_{10} (aryl)R_{20}, C_5-C_{10} (heteroaryl)R_{20}, C_5-C_{10} (cycloalkyl)R_{20}, C_5-C_{10} alkoxy(aryl)R_{20}, C_5-C_{10} alkoxy(heteroaryl)R_{20} and C_5-C_{10} alkoxy(cycloalkyl)R_{20};

wherein R_{20} is H or C_1-C_{10} alkyl;

R_{29} is H or halo;

R_{17} is selected from the group consisting of H, halo, NH_2, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylamino, C_1-C_6 alkylcyano and C_1-C_6 alkylthio;

R_2, and R_{21} are both NH_2;

R_3 is selected from the group consisting of H, C_1-C_6 alkyl, (C_1-C_4 alkyl)OH, and (C_1-C_4 alkyl)NH_2;

R_{22} is selected from the group consisting of C_1-C_6 alkyl, (C_1-C_4 alkyl)OH and (C_1-C_4 alkyl)NH_2;

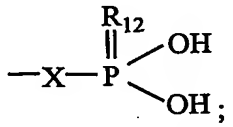
R_{23} is selected from the group consisting of H, F, CO_2H, OH, C_1-C_6 alkyl, (C_1-C_4 alkyl)OH, and (C_1-C_4 alkyl)NH_2;

R_{24} is selected from the group consisting of H, F and PO_3H_2, or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

R_{25}, R_7 and R_8 are independently selected from the group consisting of O, S, CHR_{26}, CHR_{26}, NR_{26}, and N;

wherein R_{26} is H, F or C_1-C_4 alkyl;

R_{15} is selected from the group consisting of hydroxy, phosphonate, and



wherein R_{12} is selected from the group consisting of O, NH and S;

X is selected from the group consisting of O, NH and S;

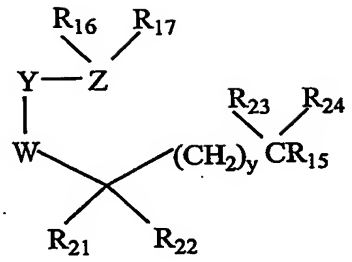
y and m are integers independently ranging from 0 to 4;

p and q are integers independently ranging from 1 to 10;

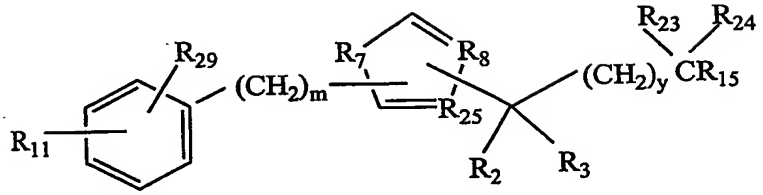
n is an integer ranging from 0 to 10;

or a pharmaceutically acceptable salt or tautomer thereof, with the proviso that W and Y are not both methylene.

25. A method of providing immuno-modulation to a patient in need thereof, said method comprising the step of administering to said patient a composition comprising a compound represented by the formula:



or



wherein

W is $CR_{27}R_{28}$ or $(CH_2)_nNH$ (CO);

wherein R_{27} and R_{28} are independently selected from the group consisting of H, halo and hydroxy;

Y is selected from the group consisting of a bond, CR_9R_{10}, carbonyl, NH, O or S;

wherein R_9 and R_{10} are independently selected from the group consisting of H, halo, hydroxy and amino;

Z is CH_2, aryl, halo substituted aryl or heteroaryl;

R_{11} and R_{16} are independently selected from the group consisting of C_1-C_{18} alkyl, C_2-C_{18} alkenyl, C_2-C_{18} alkynyl, C_5-C_{18} alkoxy, $(CH_2)_pO(CH_2)_q$, C_5-C_{10} (aryl)R_{20}, C_5-C_{10} (heteroaryl)R_{20}, C_5-C_{10} (cycloalkyl)R_{20}, C_5-C_{10} alkoxy(aryl)R_{20}, C_5-C_{10} alkoxy(heteroaryl)R_{20} and C_5-C_{10} alkoxy(cycloalkyl)R_{20};

wherein R_{20} is H or C_1-C_{10} alkyl;

R_{29} is H or halo;

R_{17} is selected from the group consisting of H, halo, NH_2, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylamino, C_1-C_6 alkylcyano and C_1-C_6 alkylthio;

R_2, and R_{21} are both NH_2;

R_3 is selected from the group consisting of H, C_1-C_6 alkyl, (C_1-C_4 alkyl)OH, and (C_1-C_4 alkyl)NH_2;

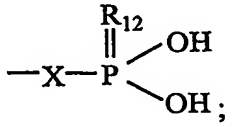
R_{22} is selected from the group consisting of C_1-C_6 alkyl, (C_1-C_4 alkyl)OH and (C_1-C_4 alkyl)NH_2;

R_{24} is selected from the group consisting of H, F and PO_3H_2, or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

R_{25}, R_7 and R_8 are independently selected from the group consisting of O, S, CHR_{26}, CHR_{26}, NR_{26}, and N;

wherein R_{26} is H, F or C_1-C_4 alkyl;

R_{15} is selected from the group consisting of hydroxy, phosphonate, and



;

wherein R_{12} is selected from the group consisting of O, NH and S;

X is selected from the group consisting of O, NH and S;

y and m are integers independently ranging from 0 to 4;

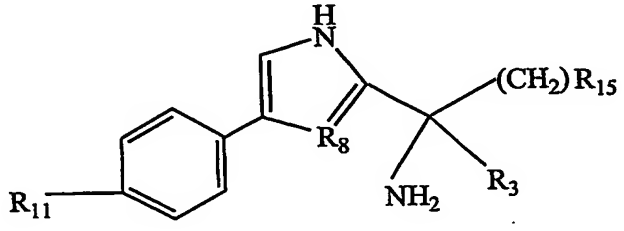
p and q are integers independently ranging from 1 to 10;

n is an integer ranging from 0 to 10;

or a pharmaceutically acceptable salt or tautomer thereof, with the proviso that W and Y are not both methylene.

26. The method of claim 25 further comprising the step of administering a second immuno-modulatory agent selected from the group consisting of cyclosporine, tacrolimus, rapamycin, azathioprine, and corticosteroids such as prednisolone and prednisone.

27. The method of claim 25 wherein the compound has the general formula:

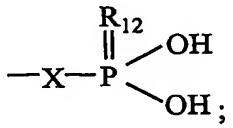


wherein R_{11} is selected from the group consisting of C_1-C_{22} alkyl, C_2-C_{22} alkenyl and C_2-C_{22} alkynyl;

R_3 is selected from the group consisting of NH_2, OH, C_1-C_6 alkyl, (C_1-C_4 alkyl)OH, -(C_1-C_4 alkyl)NH_2, (C_1-C_4 alkyl)aryl(C_0-C_4 alkyl) and (C_1-C_4 alkyl)aryloxyaryl(C_0-C_4 alkyl);

R_8 is selected from the group consisting of O, S and N.

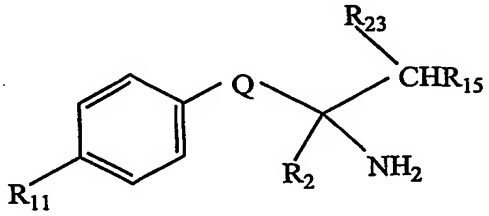
R_{15} is selected from the group consisting of hydroxy, phosphonate, and



wherein R_{12} is selected from the group consisting of O, NH and S; and

X is selected from the group consisting of O, NH and S; or a pharmaceutically acceptable salt or tautomer thereof.

28. A method of promoting wound healing in a warm blooded vertebrate, said method comprising the step of administering a composition comprising a a compound of the general structure:



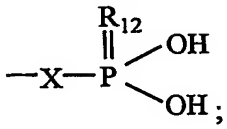
wherein R_{11} is C_5-C_{18} alkyl or C_5-C_{18} alkenyl;

Q is selected from the group consisting of C_3-C_6 optionally substituted cycloalkyl, C_3-C_6 optionally substituted heterocyclic, C_3-C_6 optionally substituted aryl, C_3-C_6 optionally substituted heteroaryl and -NH(CO)-;

R_2 is selected from the group consisting of H, C_1-C_4 alkyl and (C_1-C_4 alkyl)OH;

R_{23} is H or C_1-C_4 alkyl, and

R_{15} is selected from the group consisting of hydroxy, phosphonate, and

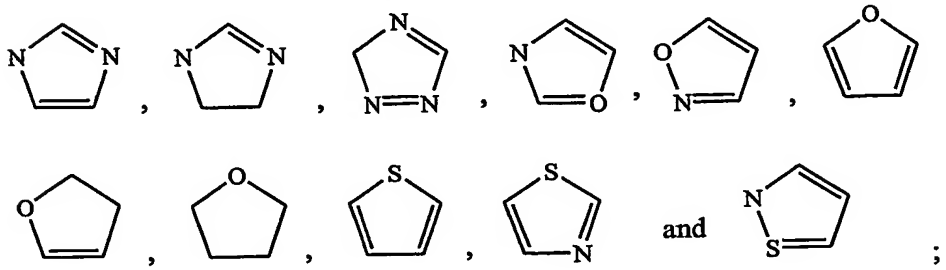


wherein X and R_{12} is selected from the group consisting of O and S;

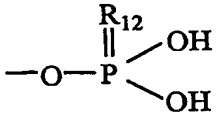
or a pharmaceutically acceptable salt or tautomer thereof.

29. The method of claim 28 wherein

Q is selected from the group consisting of -NH(CO)-,



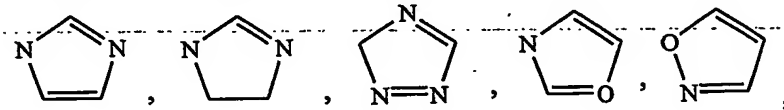
and R_{15} is selected from the group consisting of hydroxy and



wherein R_{12} is O or S.

30. . The method of claim 29 wherein

Q is selected from the group consisting of

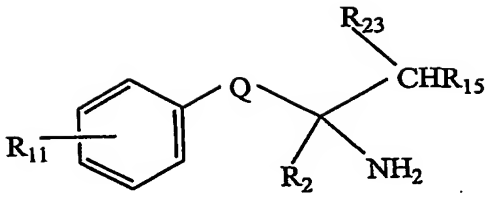


, and

R_{15} is OH;

or a pharmaceutically acceptable salt or tautomer thereof.

31. A method for treating a patient suffering from a disease associated with abnormal cell growth, said method comprising the steps of administering a a compound of the general structure:



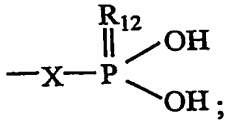
wherein R_{11} is located in the meta or para position and is selected from the group consisting of C_5-C_{18} alkyl and C_5-C_{18} alkenyl;

Q is selected from the group consisting of C_3-C_6 optionally substituted cycloalkyl, C_3-C_6 optionally substituted heterocyclic, C_3-C_6 optionally substituted aryl C_3-C_6 optionally substituted heteroaryl and -NH(CO)-;

R_2 is selected from the group consisting of H, C_1-C_4 alkyl and (C_1-C_4 alkyl)OH;

R_{23} is H or C_1-C_4 alkyl, and

R_{15} is selected from the group consisting of hydroxy, phosphonate, and

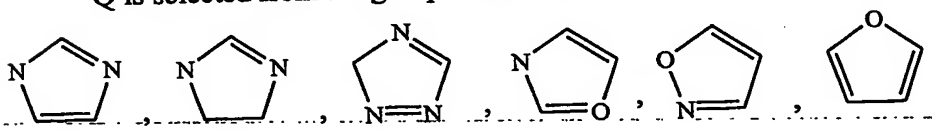


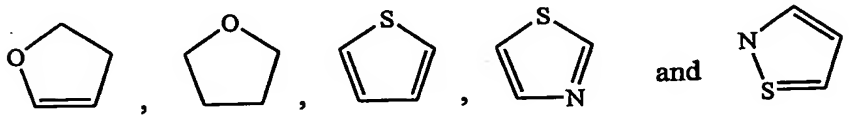
wherein X and R_{12} is selected from the group consisting of O and S;

or a pharmaceutically acceptable salt or tautomer thereof.

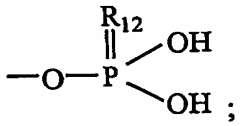
32. The method of claim 31 wherein

Q is selected from the group consisting of -NH(CO)-;





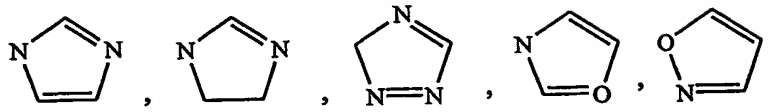
and R_{15} is selected from the group consisting of hydroxy and



wherein R_{12} is O or S.

33. The method of claim 32 wherein

Q is selected from the group consisting of



, and

R_{15} is OH;

or a pharmaceutically acceptable salt or tautomer thereof.